STUDIES IN NEARCTIC DESERT SAND DUNE ORTHOPTERA

Part IX. A new *Trimerotropis* from southern Idaho Dunes

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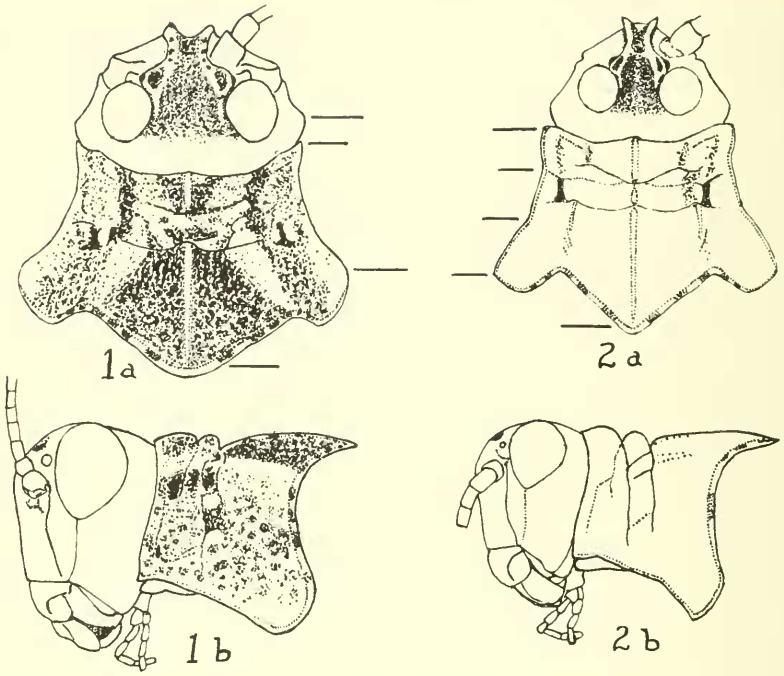
The sand dune areas of our North American deserts are so numerous that it is impossible for one to know all of them, especially in the early stages of investigation, and so when I conducted my sand dune biotae studies in the Great Basin Desert, in the late summer of 1957 and the summer of 1958 under grant from the National Science Foundation, I was unaware of those in southern Idaho. These were first brought to my attention by Dr. James Gillaspy, authority on the Bembecidae, and this knowledge led to contact with Dr. W. F. Barr, head of the Department of Entomology at the University of Idaho, just as he was leaving on his sabbatical. Later, in 1960, I noted an interesting new race of *Trimerotropis agrestis* from an Idaho dune reposing in the great Orthopterological Collection of the Museum of Zoology at the University of Michigan. Later, correspondence was resumed with Dr. Barr and through him and his graduate student, Mr. George B. Hewitt, I am indebted for the considerable collections of this new race made during 1962 and 1963. For his studies and efforts, it is a pleasure to name the new race in honor of this new student in the field of orthopterology.

Trimerotropis agrestis hewitti, new subspecies

Of the members of the *T. agrestis* group, this new subspecies is most closely related to *T. a. barnumi* Tinkham, 1960. It is intermediate in size between *barnumi* and *T. a. gracewileyae* Tinkham, 1960, from the San Rafael Desert of southeastern Utah. From *T. a. barnumi* it is distinguished by the following features: slightly larger size, the more strongly reflexed and proportionately larger, quadrate, posterior lateral lobe of the pronotum, as seen from above, and which immediately separates it from all other species of the genus, by the more acutely angular anterior lateral lobe of the pronotum, by the more roundly angular posterior angle of the dorsum of the metazona which in *barnumi* is squarely angular, by the relatively broader head especially in the clypeal suture section which thus produces a shallower depth to the head, by the more evenly rounded outline of the inferior margin of the lateral lobes of the pronotum when observed from above and which in *barnumi* is more angular, and by, perhaps, other minor features as well.

Description of Male Holotype: Head at the clypeal level slightly broader than is normal for the genus, its breadth equal to the clypeus so that the head is broader and shallower in depth than in other species of the genus *Trimerotropis*. Compound eye subglobular, its ventral depth equal to the length of the genal groove;

1. Indio, California.



Explanation of Plate

1 a. *Trimerotropis agrestis hewitti* n. subsp. Dorsal view of head and pronotum of Holotype Male, Sand Dune Lake dunes, Owyhee Co., Idaho.
1. b. Lateral view of Holotype Male of *T. a. hewitti* n. subsp.
2 a. *Trimerotropic a. barnumi* Tinkham. Dorsal view of Holotype Male. Oak City Dunes, Millard Co., Utah.
2 b. Lateral view of Holotype Male of *T. a. barnumi.*

All drawings executed on same scale and drawn 6.0 x natural size. Drawings reduced by reproduction about one-sixth. Line arrows indicate salient comparative features.

its fore margin evenly arcuate, posterior margin circularly rounded. Fastigium, seen in profile, gently sloping to the lateral foveolae, thence more declivent to round into the frontal costa at the upper level of the antennal scrobes; lateral carinae of the fastigium percurrent with those of the frontal costa. From above, lateral carinae of the fastigium diverging gently to the front margin of the compound eyes and the posterior angle of the triangulate lateral fovelae of the vertex, thence converging to the frontal costa where it diverges gently to the central portion of the face below the median ocellus. From this area the roundly angular carinae of the frontal costa becomes rounded as it diverges strongly to the lower margin of the face. Fastigium moderately impressed between the compound eyes, shallower between the lateral foveolae. frontal costa concavely impressed for its length to where the keels diverge strongyl in the lower half of the face. Plane of the median ocellus directed downwards so

that the frontal costa is most deeply impressed or excavate just below that organ. Lateral facial carinae prominant, curving around the base of the antennae, thence diverging strongly to meet the outer margins of the narrow but very broad clypeus. Lateral ocellus just above the middle of the fore margin of the compound eye. Antennae reaching to the extreme base of the caudal femora.

Pronotum rather short and broad dorsally with deep lateral lobes, the posterior angle of which is not only broadly and angularly lobular in outline but more strongly reflexed than in any other North American species of *Trimerotropis*, so much so that its outline is conspicuous when viewed from above. Median carina strongly defined in the frontal half, less defined in the posterior half of the pronotum, the principal sulcus cutting about the anterior third, the prozonal crest further dissected about the posterior third thus forming the typical bilobate prozonal crest of the genus. Lateral margins of the posterior lobes of the pronotum diverging ventrally, the narrowest portion just below the slight metazonal shoulder, which is well rounded except on the anterior quarter, where it is slightly angular. Fore margin not squarely truncate but very slightly produced; posterior margin very broadly rounded on the posterior angle. Sternum typical. Tegmina exceeding apex of abdomen by one third the total length of the body.

Coloration: General coloration arenaceous above, thoracic sternites chrome yellow, abdominal segments entirely chrome yellow. Dorsum of pronotum heavily punctate with black, the prozonal and metazonal shoulder areas marked with a narrow yellowish stripe. Lateral lobes of the pronotum generally blackish white with two small central whitish areas and the reflexed posterior angle of the lateral lobes and lower marginal area whitish. Head generally whitish with blackish infiltrations surrounding scattered punctae on the face, posterior portions of the genae more infuscated with darker gray.

Tegmina plain isabelline without indications of any cross bands, the veins and cross veins mostly white, cells mostly semitranslucent with scattered infuscated irregular cells, those in the apical third the largest. Angulate anal area yellow white, the cells of the posterior anal area generally infuscate. Wing with disc pale yellow and 10 mm. broad; black band at maximum breadth just anteriorad of posterior margin, 8 mm., and slightly less than one third the total length of the wing, the anterior portion bearing an indistinctly blunt apex, this area distinctly separated from the rest of the band by the pale yellowish cubital area. Posterior inner angle of band blunt and not quite reaching the posterior angle of the wing. Apical portion of the wing beyond the band, hyaline, with black veins.

Caudal femora with inner face plain orange red, outer pagina with upper sulcus tan with subbasal, median and subapical infuscated areas which are indicated but less defined on the outer face; lower sulcus whitish, genicular areas slightly infuscated. Caudal tibiae orange red with basal quarter paler, spines black tipped.

Holotype Male: Sand Dune Lake, 8 miles NE of Bruneau, Owyhee County, Idaho, Sept. 4, 1962, George B. Hewitt. Calliper measurements in mms.: body length 26.8; length to apex of tegmen 34.1; pronotum 5.2 x 4.6; lateral lobe of pronotum 4.9 from metazonal shoulder to apex of posterior lateral lobe x 3.5 in width just ventrad of shoulder; caudal femora 15.5 x 4.1 near base; tegmen 28.6 x 4.2 mm. Through the courtesy of Dr. W. F. Barr, head of the Department of Entomology of the University of Idaho, the male holotype will be deposited at the California Academy of Sciences on an indefinite loan basis.

Description: Female considerably larger than the male but otherwise very closely similar. Fastigium of the vertex very slightly less impressed than in the male. Keels of the frontal costa slightly more parallel than in the male. Head, from in front, with genae just below the compound eyes appearing slightly more convex and fuller than in the male. Relative breadth of the vertex the same in both sexes. Bilobate crest of prozona slightly less prominent than in the male. Jaws of the ovipositor typical of the genus. In all other respects the female is typical of the male.

Allotype Female: Indian Cove (immediately east over ridge from Sand Dune Lake), Owyhee County, Idaho, July 30, 1932, A. C. Cole collector (Museum of Zoology, Michigan). Measurements in millimeters: Body length 34.2, length to apex of tegmen 43.1; pronotum 6.9 x 6.3; lateral lobe of pronotum 6.1 x 4.4; tegmen 44.4 x 6.4; wing 31.5 x 18.2 mm. Allotype female deposited in the Orthoptera Collection of the Museum of Zoology, University of Michigan.

Paratype Males: Sand Dune Lake dunes. 12, Sept. 4, 1963; 15, July 18, 1963, O. O. Fillmore and G. B. Hewitt; 13, Sept. 9, 1963, W. F. Barr and George B. Hewitt. Dietrich Butte, Lincoln Co., Idaho, 2, July 29, 1, July 31, 1, Aug. 3, 1955, James E. Gallaspy; 3, July 20, 1962, George B. Hewitt. Range in millimeters: body length 24.8 - 28.9; body length to apices of tegmina 32.5 - 36.0; pronotum 4.8 - 5.6 x 4.5 - 4.8; lateral lobes of pronotum 4.2 - 5.5 (max. depth) x 3.9 - 4.6 (max. breadth); tegmina 27.0 - 30.5; caudal femora 13.6 - 16.0 mm. Thanks to the courtesy of Dr. W. F. Barr, paratype males will be deposited in the major orthopterological museums such as USNM, ANSP, MZM. Tinkham Eremological Cln, also Minnesota, Brigham Young, Los Angeles County Museum and California Academy of Sciences.

Paratype males similar to the holotype in every respect; some males tinged with rust red along anal vein, pronotum and upper sulcus of caudal femora.

Paratype Females: Sand Dune Lake dunes, 5, July 18, G. B. Hewitt; 12, July 18, 1963, O. O. Fillmore and G. B. Hewitt. Dietrich Butte, Lincoln Co., Idaho, 1, Aug. 3, 1955, J. E. Gillaspy; 2, July 20, 1962, George B. Hewitt.

Range in millimeters: Body length 29.6 - 33.8; length to apex of tegmen 35.3 - 43.9; pronotum 5.3 - 6.8 x 4.9 - 6.1; lateral lobes 4.9 - 5.7 x 4.3 - 5.1; tegmina 29.1 - 35.4; caudal femora 15.0 - 18.9 mm. Deposition as indicated for Paratype males. Paratype females identical of Allotype.

Description of Sand Dunes: In a very recent communication Dr. W. F. Barr has furnished the following information: "The Bruneau sand dunes are located approximately 8 miles northeast of Bruneau and the locality is frequently known now as Sand Dune Lake. The dunes themselves are extremely large and active and surround several small fresh water lakes than have come into existence as a result of underground backup from the Strike Dam on the Snake River. The dunes lie in the southern portion of a small basin that extends several miles northward and opens on the Snake River. Several square miles of area are occupied by the dunes. Vegetation on the peripheral sandy areas includes *Artemesia tridentata*, *Chrysothamnus nauseosus* and *viscidiflorus*, *Atriplex canescens*, *Psoralea lanceolata*, Indian rice grass, balsam root and other annuals. Willows, cottonwood and Russian olive trees have been planted near the shores of the small lakes.

"Indian Cove is an agricultural area over the ridge immediately to the east of the sand dune area. This is a larger basin than the sand dune basin which is sometimes also referred to as Eagle Cove.

"The Dietrich Butte sandy area is located as a relatively flat blow area with drifting sand over several hundred acres on the northeast slope of the eastern butte. The areas surrounding the sand formerly were in sagebrush but have been badly burned over many times for many years. Consequently, the vegetation around the sand is annual and consists predominantly of cheat grass and mustards."

Orthopteran Associates: According to a note from Mr. George B. Hewitt, these are: *Trimerotropis arenacea*, *T. bilobata*, *T. gracilis*, *T. pallidipennis*, *Conozoa wallula* and others.

Bibliography

Tinkham, Ernest R.
1960. Studies in Neararctic Desert Sand Dune Orthoptera. Part II. Two new grasshoppers of the genus *Trimerotropis* from the Utah Deserts. Great Basin Naturalist, 20(3&4): 49-58. 6 text figs.